Flooring and Acoustic Damping

Sikafloor® Marine

Innovation & Consistency | since 1910

Acoustic Systems

As a world leader in the development of Bonding, Sealing, Damping and Reinforcing products, Sika is supplier and partner to the global marine industry, providing a range of state of the art technology solutions to assist manufacturers in providing an efficient and cost effective design and production process.

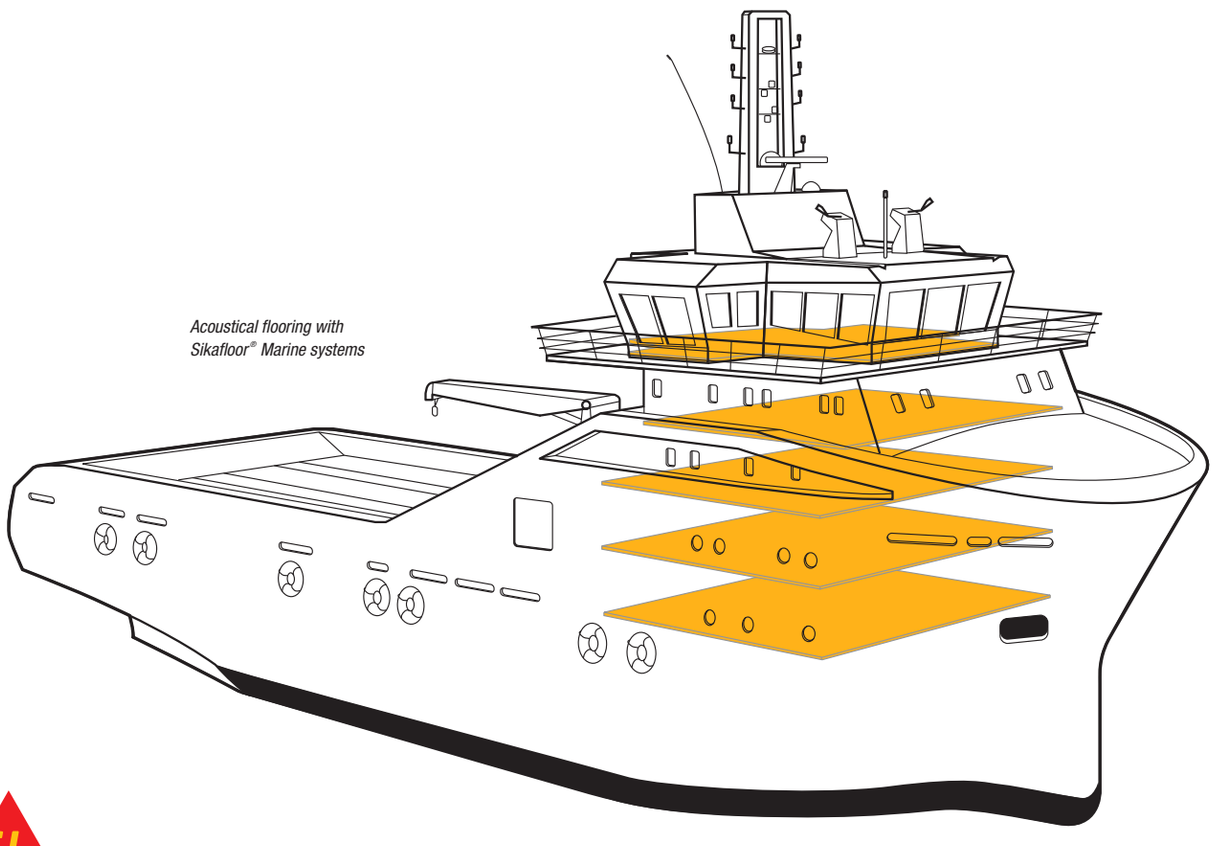
With safety at sea being paramount and the light weight and high performance of marine vessels as a priority, Sika offers a comprehensive range of marine products that combine all of these objectives, together with first class support from a team of highly experienced specialists.

As a globally operating company, Sika is partner to its customers worldwide and is represented with its own subsidiaries in all marine vessel producing countries, thus ensuring first class order handling, delivery, application development, technical and commercial support, wherever our customers operate.

The comfort and safety of passengers and crew of marine vessels and offshore installations is not only desirable, it is also one of the mandatory demands of international regulations and standards.

The Sikafloor® Marine range is specifically designed for the reduction of airborne noise and the damping of structure borne noise, two of the factors most affecting comfort and acoustic safety. The range includes primary deck coverings, and fire rated and sound reducing flooring systems that level and smooth surfaces as well as greatly improving the environment, in compliance with the regulations.

The range also includes the visco elastic vibration damping system that can be applied to both floors and bulkheads to provide a level of acoustic damping hitherto unattainable for the cost, weight and performance.



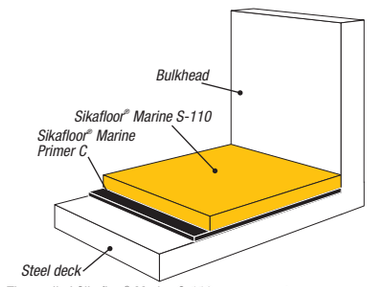
Acoustical flooring with Sikafloor® Marine systems

Primary Deck Coverings

When fitting carpets, vinyl etc. the deck needs to be level. Sika offers a wide range of levelling compounds, each with different benefits so that an ideal compound is available for every project.

Primary Deck Covering

At the simplest end of the range, use of the cement and light filler based Sikafloor® Marine-100, S-110 and -120, results in a single thin layer of self-levelling compound that sets in about 6-10 hours and solves the problem of levelling and smoothing. For wet areas, on slopes and for traditional levelling, Sikafloor® Marine KG-202 N and KG-404 N should be used instead. For improved thermal insulation, the lightweight compound Sikafloor® Marine Thermolight should be used.
Using Sikafloor® Marine E-43 and Sikafloor®-169, achieves a seamless decorative floor in a range of attractive colours.



The applied Sikafloor® Marine S-110 arrangement

Best Recommended Sika Products
Features & Benefits

Sikafloor® Marine-100 is a lightweight self-levelling compound for application between 3-5mm with density of 0,9g/cm³

Sikafloor® Marine S-110 is a lightweight self-levelling compound for application between 5-10mm with density of 0,9g/cm³

Sikafloor® Marine-120 is a lightweight self-levelling compound for application up to 20mm with density of 0,9g/cm³

Sikafloor® Marine KG-202 N is a lightweight levelling compound for traditional levelling and slopes with density of 0,9g/cm³

Sikafloor® Marine KG-404 N is a levelling compound for traditional levelling, slopes and wet areas with density of 1,4g/cm³

Thermo-Light Lightweight is a lightweight thermal insulation underlay, with a density of 0,6g/cm³ used in thicknesses from 10mm upwards

Sikafloor® Marine E-43 and Sikafloor®-169 is both an epoxy primer and a deck finish material for wet-room areas, with a density of 1,2g/cm³ (unfilled) and 1,5g/cm³ (filled)

Technological Benefits

– 1-component; ready to mix
– Lightweight levelling compound
– Rapid walk-on property
– Self-levelling compound
– Seamless decorative floor

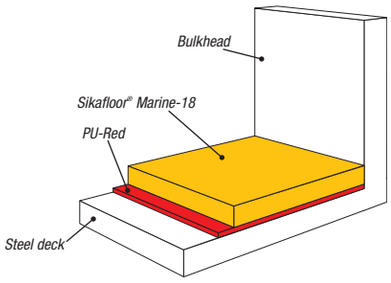
Vibration Damping and Sound Reduction

To protect passengers and crew against noise, the comfort requirements are steadily being increased, setting new standards for maximum allowable noise and vibration levels on-board ships. Today's ships are required to be equipped with the most effective means of reducing the transmission of noise and vibration. But for practical reasons, an adequate noise reduction cannot be obtained without additional noise reducing measures on the steel deck and bulkheads. In most modern vessels the problem is a combination between airborne and structure-borne noise. A suitable floor construction with good noise reducing properties over the problem frequency range, and the low frequency range in particular, is the combination of the visco-elastic floor and floating floor systems.

Constrained Visco-Elastic Vibration Damping Systems

On a vessel, the most dominant transmission of undesirable sound or noise is through the structure of the vessel. The engine, the propeller, the gearbox etc. each creates energy waves that transmit as structure-borne noise into the air from the large flat areas of the decks and bulkheads that act as sounding boards.

Sika has various visco-elastic solutions that have a significant dampening effect on structure-borne noise. Sikafloor® Marine PK-90 N and PK-90 Steel each provide excellent structure-borne damping properties by using a thin visco-elastic damping layer of Sikafloor® Marine PU-Red, constrained either by a concrete layer or by steel tiles.



The applied Sikafloor® Marine PK-90 arrangement

Technological Benefits

- Good vibration dampening
- Levelling and sound-reducing properties
- Ideal for use in slipways

Best Recommended Sika Products

Features & Benefits

Sikafloor® Marine PK-90 N consists of Sikafloor® Marine PU-Red with Sikafloor® Marine-18 as a constrained layer

Sikafloor® Marine PK-90 Steel consists of Sikafloor® Marine PU-Red with steel tiles applied

Sikafloor® Marine PK-90 Steel Vertical consists of Sikafloor® Marine PU-Red where steel tiles are applied to **vertical surfaces**

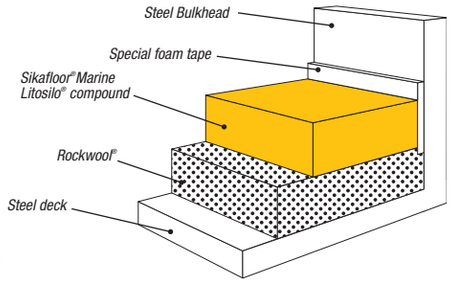
Sikafloor® Marine PK-90 Alu consists of Sikafloor® Marine PU-Red with aluminium tiles applied (for use on aluminium decks only)

Sound Reducing Floating Floors

Airborne noise is less dominant than structure-borne noise. A significant difference is that airborne noise transmits as variations in air pressure instead of as dynamic movements in the structure and is reduced more easily.

Sika's floating floor systems improve the environmental conditions in every part of the ship by attenuating the energy transmission from the substrate beneath, while absorbing airborne noise. Sikafloor® Marine Litosilo N or Litosilo Steel each have excellent sound reducing properties by using Rockwool® as the insulating layer with either cement or steel plates as a top layer.

All of the floating floor systems from Sika, with the exception of the Alu solution, are A60 Class fire approved, according to the latest IMO testing standards.



The applied Sikafloor® Marine Litosilo® arrangement

Technological Benefits

- High sound reduction
- High damping properties
- A60 fire rated
- Low building height

Best Recommended Sika Products

Features & Benefits

Sikafloor® Marine Litosilo N is a sandwich construction consisting of Rockwool® from 20mm and a Sikafloor® Marine Litosilo N compound from 25mm that gives good sound reducing results even with low building heights. A60 fire approved

Sikafloor® Litosilo Steel is a sandwich construction consisting of Rockwool® from 30mm covered by 3mm steel plate, 1mm of Sikafloor® Marine PU-Red and at least 1,5mm of steel plate on top. A60 fire approved

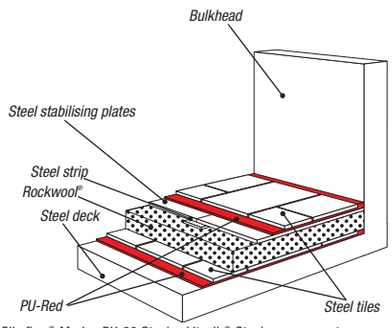
Sikafloor® Litosilo Alu is a sandwich construction consisting of Rockwool® from 20mm covered by a 3mm aluminium plate, 1mm of Sikafloor® Marine PU-Red and at least 1,5mm of aluminium plate on top

Combination Floor

In most modern vessels the combination of airborne and structure-borne noise is problematic. The combination of visco-elastic and floating floor systems provides an ideal solution with good noise reducing properties throughout the problem frequency ranges; the lower frequencies in particular.

Visco Elastic and Floating Floors

Sika's combination floors make a significant reduction in structure-borne as well as airborne noise. The combination floors not only provide excellent sound reduction but with two exceptions, are A60 Class fire approved. (Exceptions: Sikafloor® Marine PK-90N + Litosilo Steel and Sikafloor® Marine PK-90 Alu + Litosilo Alu.)



The Sikafloor® Marine PK-90 Steel + Litosilo® Steel arrangement

Best Recommended Sika Products
Features & Benefits

Sikafloor® Marine PK-90 N + Litosilo (A60 fire approved)
Sikafloor® Marine PK-90 Steel + Litosilo (A60 fire approved)
Sikafloor® Marine PK-90 N+ Litosilo Steel
Sikafloor® Marine PK-90 Steel + Litosilo Steel (A60 fire approved)
Sikafloor® Marine PK-90 Alu + Litosilo Alu

Technological Benefits

- High reduction of structure-borne and airborne noise
- Combines the benefits of visco-elastic floor and floating floor systems

Other Sika Marine Solutions

In addition to the acoustic flooring systems described in this brochure, Sika has an extensive range of well-established products for bonding, sealing, damping and reinforcing both structural members and smaller component assemblies for marine applications.
These include a comprehensive range of structural sealants and adhesives for cruise ships, ferries, leisure boats, luxury yacht, commercial ships and offshore equipment manufacturing yards. This extensive line of Sikaflex®-oriented marine products covers caulking, levelling, bedding, protecting, sealing, bonding and glazing.

Structural Bonding

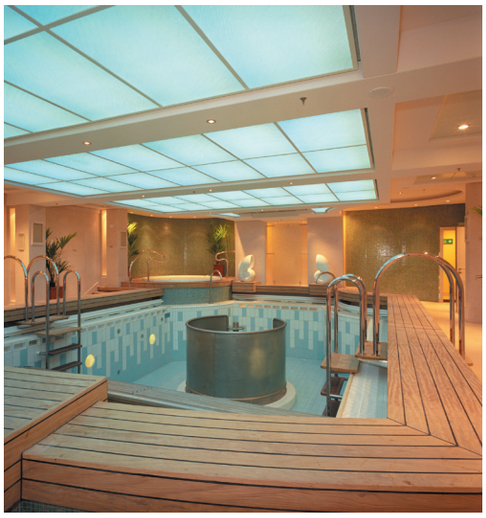
Sika products specific to bonding structural members exhibit high tensile strength and variable open time to accommodate everything from quick production rates to much slower, large structural component assembly.

Flexible Bonding and Sealing

Sika flexible bonding and sealants have far greater flexibility than structural bonding products and these properties reduce fatigue in the bonded assemblies.
In addition to filling and protecting, Sika sealants bond well to the substrates and have a good cosmetic finish.

Component Bonding

Smaller decorative components require a different approach. The bonding of loose fabrics, leather, and vinyl products, can be carried out using Sika's range of spray-on, roll-on and hot melt adhesives, whereas tiles are fixed using Sika's polyurethane adhesives.
For more information regarding these products please contact your local Sika Company.



Focusing on the Customer

Sika develops bonding, sealing, damping and reinforcing solutions in close co-operation with our customers in the marine industry. To Sika, this means not only developing best-in-class technology solutions to match our customer's technical and commercial requirements, but also ensuring appropriate performance throughout the design, prototyping, validation and full production phases. Specialists in Sika's R&D (Research & Development), Technical Service and Application Technology concentrate on devising Research & Development appropriate client-oriented solutions.

Technical Service

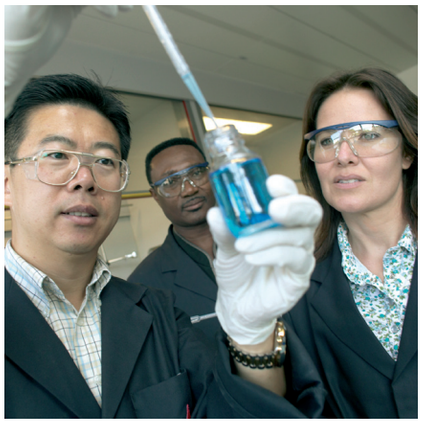
Sika Technical Service teams are located around the world, and are dedicated to provide best practice selection, validation and application of Sika materials. By being located close to our customers, Sika Technical Service can ensure optimum local-language communication and understanding throughout the technical application development process to ensure best possible results for our customers.

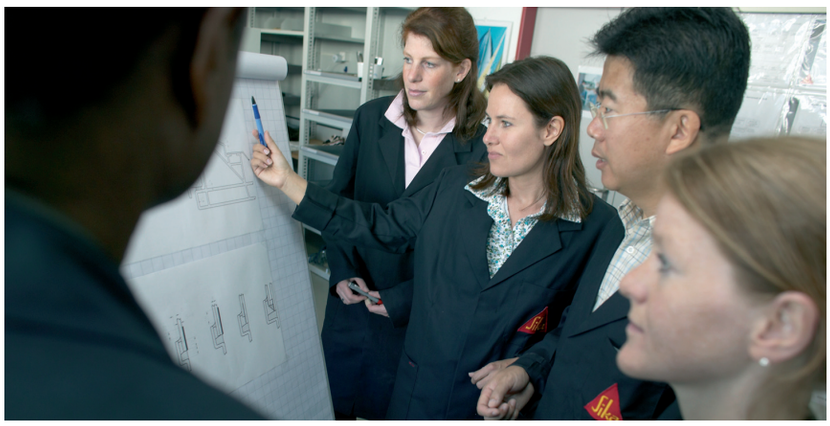
Local Service & Support

With major sales, service and logistics operations around the globe, Sika provides customers with world scale customer service, sales and logistics support via local dedicated teams in local languages.

Acoustic Test Centre

In close co-operation between Sika's R&D department and major acoustic test centres around the world, Sika is continually developing improvements to acoustic flooring systems. Using the latest technology and sonic testing techniques, Sika is breaking new ground to provide the very best sound dampening solutions for our customers.





Sika
Worldwide

Sika ensures high quality for its products and services. In each production process, for each workplace and for each employee, the guiding aim is to uphold quality at the highest level. Sika is certified according to the international standards ISO 9001, ISO 14001 and QS 9000.

Responsible Care

Certified Quality System SQS Reg.-Nr. 10553-0 ISO 9001/EN 29001 since 1986

Certified Management System SQS ISO 14001 since 1997

www.sika.com

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